

Amdt. dated July 13, 2009

Reply to Office Action of April 24, 2009

**Amendments to the Specification:**

**Please replace paragraph [0010] with the following amended paragraph:**

[0010] As shown in Figures 1 and ~~2A~~ 2, the plurality of oil springs 61 and 62 are formed by being spirally wound several times at regular intervals, having the same diameter. That is, the coil spring 61, 62 has an inner coil 58 wound plural times and end coils 59 formed at both ends of the inner coil 58.

**Please replace paragraph [0013] with the following amended paragraph:**

[0013] When a current is applied to a winding coil 34 of an outer stator 31 of a reciprocating motor 30, an induction magnetic field having a direction changed according to a direction of a current is formed at the outer stator 31, and an electromagnetic force having a direction changed according to a direction of the induction magnetic field is generated between the outer stator 31 and the inner stator 32 by the interaction between the induction magnetic field and a magnetic field of the inner stator 32. Here, a rotor 33 and a piston 42 are moved together in a direction of the electromagnetic force, and, simultaneously, the piston 42 generates a pressure difference in a compressing space (P) of the cylinder 41 while linearly reciprocating in the cylinder by front and rear resonant springs 51 and 52, thereby repeatedly performing a series of processes of sucking a refrigerant gas and compressing the sucked refrigerant gas until the pressure reaches a certain level and discharging the compressed refrigerant gas.

Please replace paragraph [0015] with the following amended paragraph:

[0015] However, the conventional reciprocating compressor as above is mostly vibrated in a lateral direction by nature, that is, in a direction that the piston of the reciprocating motor moves. Nevertheless, the lateral stiffness of the oil spring is weak because an internal oil of each coil spring for supporting the main body of the reciprocating compressor is formed at regular pitches. For this reason, as shown in Figure-2B\_3, a lateral displacement (L) of the compressor becomes great, and thus the compressor main body is excessively inclined, thereby making the vibration of the compressor severe.

Please replace paragraphs [0019]-[0030] with the following amended paragraphs:

[0019] Figure-2A\_2 is a side view showing a coil spring of a conventional reciprocating compressor;

[0020] Figure-3A\_3 is a view showing a lateral displacement of a coil spring of a conventional reciprocating compressor;

[0021] Figure-3\_4 is a longitudinal sectional view showing one example of a reciprocating compressor in accordance with the present invention;

[0022] Figure-4\_5 is a partial longitudinal sectional view of a reciprocating compressor, for showing a coil spring in accordance with a first embodiment of the present invention;

[0023] Figure-5A\_6 is a side view showing a oil spring in accordance with a first embodiment of the present invention;

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[0024] Figure-5B\_7 is a view showing a lateral displacement of a coil spring in accordance with a first embodiment of the present invention;

[0025] Figure-6\_8 is a partial longitudinal sectional view of a reciprocating compressor, for showing a coil spring in accordance with a second embodiment of the present invention;

[0026] Figure-7A\_9 is a side view showing a coil spring in accordance with a second embodiment of the present invention;

[0027] Figure-7B\_10 is a view showing a lateral displacement of a coil spring in accordance with a second embodiment of the present invention;

[0028] Figure-8\_11 is a partial longitudinal sectional view of a reciprocating compressor, for showing a coil spring in accordance with a third embodiment of the present invention;

[0029] Figure-9A\_12 is a side view showing a coil spring in accordance with a third embodiment of the present invention; and

[0030] Figure-9B\_13 is a view showing a lateral displacement of a coil spring in accordance with a third embodiment of the present invention.

Please replace paragraph [0032] with the following amended paragraph:

[0032] Figure-3\_4 is a longitudinal sectional view showing a reciprocating compressor in accordance with the present invention.

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**Please replace paragraph [0035] with the following amended paragraph:**

[0035] The frame unit 200 includes a front frame 210 having one surface supported by the supporting unit 600 and fixing one surface of the reciprocating motor 300; a middle frame 220 fixed to the other surface of the reciprocating motor 300 fixed at the front frame 210; and a rear frame 230 having one surface elastically fixed to the supporting unit 600 and connected to the middle frame 220.

**Please replace paragraph [0040] with the following amended paragraph:**

[0040] As shown in Figure 3-5, the plurality of oil springs 610 and 620-~~are~~is formed by being spirally wound several times, having the same diameter. That is, the coil spring 610, 620 has an inner coil 580 wound plural times and end coils 590 formed at both ends of the inner coil 580.

**Please replace paragraphs [0043]-[0044] with the following amended paragraphs:**

[0043] Figure 4-5 shows one of plural ~~a plurality of~~ coil springs constituting a supporting unit of a reciprocating compressor in accordance with a first embodiment of the present invention.

[0044] Even though only one front coil spring is depicted in figure 4 Figure 5, the same structure as that depicted in the drawing is applied to the rest of the coil spring of the reciprocating compressor. A structure depicted in another drawing for another embodiment to be described later is also applied to the rest of the coil spring of the corresponding compressor.

**Please replace paragraph [0049] with the following amended paragraph:**

**[0049]** In addition, each of the elastic parts 631 may be wound at pitches ~~(T)~~ <sup>(t)</sup> decreased as it goes from the end coil 590 toward the mass part 632 or may be wound at pitches ~~(T)~~ <sup>(t)</sup> increased as it goes from the end coil 590 toward the mass part 632.

**Please replace paragraphs [0052]-[0054] with the following amended paragraphs:**

**[0052]** As shown in Figures 5A\_6 and 5B\_7, as the mass part 632 which is wound tightly is formed between the pair of elastic parts 632, the lateral stiffness of the coil spring is increased, thereby attenuating a lateral displacement (L1) of the compressor main body 700 and so effectively reduce the vibration of the compressor main body.

**[0053]** Figures 6 and 7-8-10 show a coil spring constituting a supporting unit of a reciprocating compressor in accordance with a second embodiment of the present invention.

**[0054]** As shown in Figure 6-8, a coil spring 610, 620 in accordance with the second embodiment includes an end coil 590; and an inner oil 580 including a pair of mass parts 641 which are tightly wound right next to the end coil 590; an elastic part 642 wound at predetermined pitches (t) between the pair mass parts.

**Please replace paragraphs [0059]-[0061] with the following amended paragraphs:**

**[0059]** As shown in Figures 7A\_9 and 7B\_10, in this case, the lateral stiffness of the coil spring 610, 620 is increased by the mass parts 641 which are tightly wound, thereby effectively

attenuating a lateral displacement (l.2) generated by the vibration of the compressor main body 700.

[0060] Figure-8\_11 shows a coil spring constituting a supporting unit of a reciprocating compressor in accordance with a third embodiment of the present invention.

[0061] As shown therin, a oil spring 610, 620 in accordance with the third embodiment includes an end coil-592\_590; and an inner coil\_580 including a first elastic part 652 wound from an end coil 590 fixed at one surface of the compressor main body 700 at predetermined pitches (t1), a second elastic part 653 wound from an end coil 590 fixed at one surface of the casing 100 at predetermined pitches (t2) that are different from those (t1) of the first elastic part 652, and a mass part 651 tightly wound between the first and second elastic parts 652 and 653.

Please replace paragraphs [0064]-[0065] with the following amended paragraphs:

[0064] On the contrary, the first elastic part 652 and the second elastic part 653 may be wound at pitches (t1 and t2) increased as it goes from both end coils-592\_590 toward the mass part 651, and the increasing ratios of the pitch (t1) and the pitch (t2) may be different from each other.

[0065] In addition, the first elastic part and the second elastic part 653 may be wound at pitches (t1 and t2) increased and decreased alternatively as it goes from both end coils-592\_590 toward the mass part 651, and the increasing ratios of the pitch (t1) and the pitch (t2) may be different from each other.

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Please replace paragraph [0068] with the following amended paragraph:

[0068] As shown in Figures 9A-12 and 9B-13, by such a construction of a coil spring 610, 620 in accordance with the third embodiment, the lateral stiffness of the coil spring 610, 620 is increased by the mass part which is tightly wound. In addition, because elastic coefficients of the first elastic part 652 and the second elastic part 653 are different from each other, a lateral displacement generated by the vibration of the compressor main body 700 can be attenuated, more effectively.